IN THE CLAIMS

1. (cancelled)

2. (currently amended) A radio communication device for operation in a radio communication environment in which a plurality of adjacent radio networks ~~have~~ having overlapping service areas, said radio communication device comprising:

communication means for communicating radio data;

control means for controlling radio data communication ~~of~~ by said communication means;

notification means for notifying an existence within a service area of said communication means;

terminal detection means for detecting existence of another radio communication device within said service area of said communication means; and

connection management means for managing connection/non-connection of said other radio communication device detected within said service area~~,~~ wherein said radio communication environment further comprises an adjacent ad-hoc radio network to which each radio communication device performs direct asynchronous ad-hoc communication without using a communication device as a control station.

3. (cancelled)

4. (cancelled)

5. (previously presented) The radio communication device according to Claim 2, wherein said connection management means performs authentication verification of a radio communication device detected by said terminal detecting means and registers said radio communication device in said connection

list authentication is successful, and registers said radio communication device in said non-connection list when authentication is unsuccessful.

6. (original) The radio communication device according to Claim 2, wherein said connection management means performs authentication verification of an apparatus among radio communication devices detected by said terminal detecting means which has no registration in both said connection list and said non-connection list, but does not perform authentication verification of an apparatus already registered in said non-connection list.

7. (previously presented) The radio communication device according to Claim 2, wherein said connection management means transmits an authentication request command to a radio communication device for registration in said connection list and registers said radio communication device in said connection list; and transmits an authentication completion command when receiving and authorizing authentication of an authentication request command from another radio communication device.

8. (previously presented) The radio communication device according to Claim 5, wherein said connection management means determines an existence of an authorization for authentication after performing authentication of a user, when receiving an authentication request command from another radio communication device.

9. (previously presented) The radio communication device according to Claim 5, wherein said connection management means erases from said connection list a radio communication device whose existence is not detected by said terminal

detecting means during a period of time exceeding a predetermined time limit.

10. (previously presented) The radio communication device according to Claim 5, wherein said connection management means erases from said non-connection list a radio communication device whose existence is not detected by said terminal detecting means during a period of time exceeding a predetermined time limit.

11. (currently amended) The radio communication device according to Claim 4<u>2</u>, wherein said control means sets a reception domain of predetermined duration within said frame period after said beacon signal, and a remaining portion of said frame period is set as an unused domain.

12. (currently amended) A radio communication method for radio communication in a radio communication environment in which a plurality of adjacent radio networks ~~have~~ <u>having</u> overlapping service areas, said radio communication method comprising:

~~a notification step of~~ notifying an existence of a radio communication device within its service area;

~~a terminal detection step of~~ detecting existence of another radio communication device within said service area; ~~and~~

~~a connection management step of~~ managing connection/non-connection of said other radio communication device detected within said service area<u>;</u>

<u>performing authentication verification of the radio communication device detected in said terminal detecting step;</u>

<u>registering said radio communication device in a connection list when authentication is successful; and</u>

<u>registering said radio communication device in a non-</u>

connection list when authentication is unsuccessful.

13. (cancelled)

14. (cancelled)

15. (currently amended) The radio communication method according to Claim ~~14~~12, wherein said connection management step performs authentication verification of an apparatus among radio communication devices detected in said terminal detecting step which has no registration in both said connection list and said non-connection list, but does not perform authentication verification of an apparatus already registered in said non-connection list.

16. (currently amended) The radio communication method according to Claim ~~14~~12, wherein said connection management step further comprises the steps of:
    transmitting an authentication request command to a radio communication device for registration in said connection list; and
    ~~registers~~ registering said radio communication device in said connection list and ~~transmits~~ transmitting an authentication completion command ~~when receiving and authorizing authentication~~upon receipt of an authentication request command from another radio communication device.

17. (currently amended) The radio communication method according to Claim ~~14~~12, wherein said connection management step determines existence of authorization for authentication after performing authentication of a user, when receiving an authentication request command from another radio communication device.

18. (currently amended) The radio communication method according to Claim ~~14~~12, wherein said connection management step erases from said connection list a radio communication device whose existence is not detected in said terminal detecting step during a period of time exceeding a predetermined time limit.

19. (currently amended) The radio communication method according to Claim ~~14~~12, wherein said connection management step erases from said non-connection list a radio communication device whose existence is not detected in said terminal detecting step during a period of time exceeding a predetermined time limit.

20. (cancelled)

21. (new)   A radio communication device, comprising
a transmitter for communicating radio data;
a microprocessor for controlling communication of radio data by the transmitter;
a signal generator for generating a first beacon signal having a predetermining frame period for transmission by the transmitter the beacon signal notifying one or more other radio communication devices within a service area of the transmitter;
a receiver for detecting the one or more other radio communication devices within the service area of the transmitter; and
an information storage unit storing connection management information associated with the one or more other radio communication devices detected within the service area, and
wherein the microprocessor is operable to authenticate one of the one or more other radio communication devices detected by the receiver and register the one of the one or more other radio

communication devices as part of the connection management information of authentication is successful.

22. (new)   The radio communication device of claim 21, wherein the connection management information comprises one or more connection lists associated with the one or more other communication devices.

23. (new)   The radio communication device of claim 21, wherein the connection management information comprises one or more non-connection lists associated with the one or more other communication devices.

24. (new)   The radio communication device of claim 21, wherein the information storage unit stores instructions that are executed by the microprocessor.

25. (new)   A method for communicating in a radio communication environment including a plurality of adjacent radio networks having overlapping service areas, the method comprising:
     providing, by a first radio device, notification information indicating the radio device's presence in a first service area associated with one of the adjacent radio networks;
     managing connection of the second radio device detected in the first service area;
     sending an authentication request command to the second radio device; and
     registering the second radio device in a connection list associated with the first radio device if an authentication completion message is received from the second radio device.